

2017 Tool – Tank Controls Capture Efficiency Sensitivity Analysis

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2014 vs. 2017 Emissions

- VOC emissions in the 2017 Tool decreased by 872,000 tpy from 2014
- Categories with > 10,000 tpy difference

Source Category	VOC Change (TPY)	VOC Change (%)
Associated Gas	-65,150	-41%
Condensate Tanks	-158,510	-48%
Crude Oil Tanks	-529,266	-54%
Fugitives	-86,843	-24%
Mud Degassing	-50,027	-55%
Pneumatic Devices	74,922	13%
Well Completions	-47,196	-36%



Storage Tanks – Subpart W

- Condensate tank fraction controlled increased by 26% to 85% from 2014 to 2017
 - 2014 Tool did not address VRU's, otherwise 11% increase
- Crude oil tank fraction controlled increased by 31% to 86% from 2014 to 2017
 - 2014 Tool did not address VRU's, otherwise 17% increase



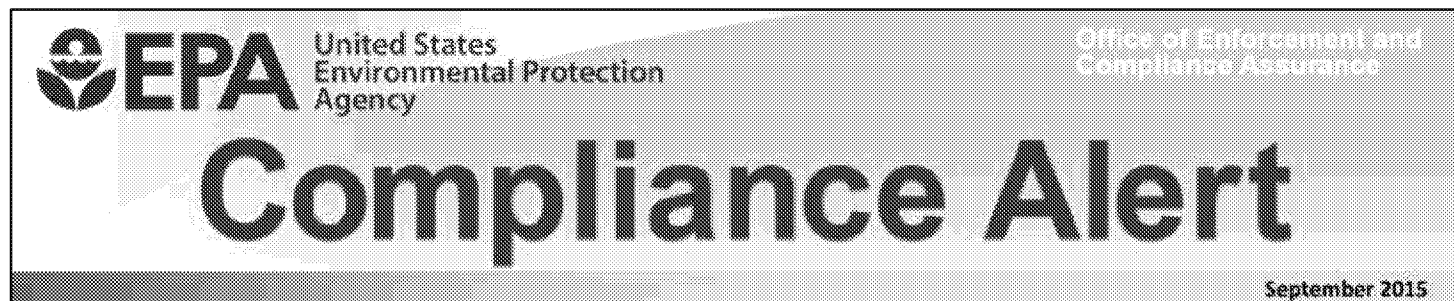
Storage Tanks – Available Data

Inventory/Year	Data Reference	Condensate Fraction Controlled %	Crude Oil Fraction Controlled %
2011 Tool	GHGEI/CenSARA	50	5
2014 Tool	Subpart W	74* (w/VRU)	69* (w/VRU)
2015 GHGEI	Subpart W	71	77
2015 TCEQ Study	TCEQ Study	70	83
2017 Tool	Subpart W	85	86
2017 Permian Basin	Subpart W	81	76
Permian Basin (NM)	2019 WRAP Survey	-	81
2017 Williston Basin	Subpart W	94	98
Williston Basin (ND)	2019 WRAP Survey	99	99



Storage Tanks

- NSPS OOOO/OOOOa requires 95% control
 - EPA issued Storage Vessel Compliance Alert in 2015
- “EPA and state inspectors have observed emissions from storage vessel PRDs, such as closed thief hatches and pressure relief valves. Inadequately designed, sized, operated, and/or maintained vapor control systems may not effectively capture and control emissions.”*





Storage Tanks Capture/Control

- Crude Oil Tanks
 - 100% capture efficiency nation-wide
 - 98% control efficiency default
 - 90% control efficiency (WRAP - MT, ND, SD)
- Condensate Tanks
 - 100% capture efficiency nation-wide
 - 80% control efficiency default (combined capture/control)
 - 90% control efficiency (WRAP – MT, ND, SD)
 - 98% control efficiency (CenSARA, WRAP, WV, NM)



Capture Efficiency Sensitivity Analysis

- Sensitivity analysis
 - Keep fraction controlled and control efficiency static
 - Vary capture efficiency
- Capture efficiency scenarios
 - Base case (current tool)
 - 90% capture efficiency
 - 80% capture efficiency
 - 70% capture efficiency



Capture Efficiency Sensitivity Analysis

